Galileo NIMS Thermal Observations of Asteroid 243 Ida and 1993(243)1

1'. R. Weissman, R. w. Carlson, M.E. Segura, W.D. Smythe, 1).]/. Matson, T.V. Johnson (Jet Propulsion Laboratory), F.E.] .eader (UCLA), 11.11. Kieffer, L. A. Soderblom (USGS Flagstaff), 1'.1'. Fanale, J. C. Granahan (Univ. 1 lawaii), 'l'. B. McCord (S11'1'S inc.)

'J'he Galileo Near Infrared Mapping, Spectrometer (NIMS) observed asteroid 243 Ida during a close encounter on Aug ust 28, 1993, at a heliocentric distance of 2.95 AU. observations covering one full rotation of the asteroid were made at a variety of spectral and spatial resolutions. The best data were obtained in the HiRes observation 3.7 minutes prior to closest approach at a range of ~3,65 0 km (in 17 waveleng ths between 0.7 and 5.2 μm) at a spatial resolution of about 1.8 km per nimsel (a NIMS pixel), and in the ChemMap observation 7.8 minutes before closest approach at a range of ~6,300 km (in 102 wavelengths between 0.7 and 5.2 μm) at a spatial resolution of 3.2 km per nimsel. Thermal emission from the sunlit hemisphere of Ida was detected at wavelengths longward of 4.0 μm. Analysis of the NIMS data gives surface brightness temperatures between 180 K and 208 K, assuming an emissivity of 0.80. The surface temperatures are interpreted as consistent with a surface thermal inertia of 0.0015 cal cm^{-2} $sec^{-1/2}$ K^{-1}, indicative of a thick insulating, regolith on the asteroid surface. NIMS also discovered a satellite in close proximity to Ida, detected in three observations: HiRes, ChemMap, and IdaFin, the latter occurring 16.? minutes before closest approach at a range of ~12,300 km. Thermal observations of the satellite, 1993(? 43)1, wilt also be reported. This work was supported by NASA through the Galileo Project at JPL.